OBJECTIVES: The Turkish Medicines and Medical Devices Agency (TMMDA) gives permission of unlicensed medicine use by patient basis. Authorized wholesalers including Turkish Pharmacists' Association (TPA) can import the drugs based on the TMMDA's permission. These medicines are reimbursed by the Social Security Institution (SSI), the main reimbursement agency in Turkey Until 2014 when wholesalers were also authorized, pharmaceuticals under this status could only be imported by the Turkish Pharmacists' Association (TPA The aim of this study is to understand the trends in L group (Antineoplastic and immunomodulating agents) of ATC classification system unlicensed medicine consumption between 2011 and 2013 when the TPA was the only authorized supplier. **METHODS:** Consumption data of L group in the top 100 imported unlicensed medicines with the highest sales share in total expenses of imported off-label use was taken from the TMMDA computer database. Descriptive analysis was conducted. **RESULTS:** The analysis showed that the numbers of active ingredients of L group in the top 100 rose from 37 to 55, between 2011 and 2013. The average cost per box of unlicensed medicines in the L group increased from 4.973 TL to 7.436 TL in the same period. The total consumption of the unlicensed medicines in L group increased from 107 billion TL to 482 billion TL. **CONCLUSIONS:** The cost of imported unlicensed medicines used increased every year in Turkey. Some cost-containment measures (especially for antineoplastic medicines) should be taken to reduce the increasing cost without risking the patients' access to these innovative medicines.

PHP90

COSTS OF SEPTIC SHOCK IN ENGLAND, WALES AND NORTHERN IRELAND IN 2012

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OBJECTIVES: The objective of this study was to analyze the costs of septic shock in 2012 for England, Wales and Northern Ireland. **METHODS:** We analyzed length of stay and organ support of 20,549 adult septic shock patients. Septic shock was defined as severe sepsis including the presence of cardiovascular organ dysfunction. Data derived from the Case Mix Programme Database. This is the national, comparative audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). These analyses were based on data from 136,880 admissions to 205 adult, general critical care units (CCU) based in NHS hospitals geographically spread across England, Wales and Northern Ireland. Unit costs were obtained from the National Schedule of Reference Costs 2012-2013. **RESULTS:** There were 22,081 admissions to CCU, with an average duration of 7.6 days. At a cost per day of £1044, this adds up to £175.2 million. There were 14,471 admissions to a post-unit discharge location (23.3 days, £240/day). Total ward cost is thus about £80.9 million. Renal and advanced respiratory support was required by 4,440 and 13,797 individuals, respectively (both cost £285/day). With an average duration of 5.4 days for renal and 7.7 days for respiratory support, the total costs amount to £6.8 million and £30.3 million, respectively. Therefore, the total cost of septic shock is estimated to be around £293.2 million. **CONCLUSIONS:** With annual costs of nearly £300 million, it is evident that septic shock patients pose a heavy burden to the national healthcare system. These patients require lengthy hospital stays, as well as substantial renal and respiratory support. Adding drug costs, societal costs, as well as Scottish data, would increase the total costs even further. Septic shock is a costly disease and every effort should be made to reduce this burden to the patients, hospitals and society.

PHP91

DISINVESTING IN LOW-VALUE CARE: OPPORTUNITIES AND CHALLENGES

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OBJECTIVES: The role of 'disinvestment' in health care, i.e., the withdrawal (partially or completely) of interventions that provide no or marginal benefit compared to alternative therapeutic approaches is attracting worldwide attention. The objective of this study was to identify and review empirical evaluations of disinvestment programs to gauge their success and determine key challenges. **METHODS:** We systematically searched the medical literature using the PubMed database for empirical evaluations of disinvestment programs using the following search terms; "disinvestment", "resource allocation", "low value", and "priority setting". We did not restrict our search in regards to study publication year. Two researchers assessed each identified abstract. For each study, we reported the disinvestment program that was assessed and categorized study findings as 'successful' if a reduction in utilization of the low-value service was reported, and 'unsuccessful' if no reduction in utilization was reported. We also reported challenges identified by the study authors in the implementation of the disinvestment program. **RESULTS:** We identified 34 studies describing empirical evaluations of disinvestment programs. Fifteen pertained to the National Institute for Health and Care Excellence's recommendations, and/or their 'do not do list,' 8 pertained to the Choosing Wisely Campaign, and 11 pertained to unique initiatives worldwide—including the French initiative to delist unnecessary pharmaceuticals with the help of its Transparency Commission. The empirical evaluations varied with respect to the reported success of the disinvestment programs: twenty-one determined the program to be successful, and 13 unsuccessful. Common challenges reported by study authors include difficulty in identifying low-value care for disinvestment and gaining support among stakeholders. **CONCLUSIONS:** Empirical evaluation of disinvestment programs is limited. Available evaluations report varied success for existing disinvestment strategies and noted that a number of key challenges are yet to be overcome.

PHP92

ECONOMIC MODELLING STUDIES PUBLISHED IN 2014: WHICH DISEASE AREAS HAVE BEEN THE MAIN FOCUS OF CLINICAL RESEARCH?

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OBJECTIVES: To determine the disease focus of all economic evaluation papers indexed in the PubMed database that were published in 2014. **METHODS:** An evidence surveillance process was established based on a systematic search of PubMed, using key words relevant to economic modelling in healthcare or disease and limited to studies published in English, in humans, and with abstracts. The surveillance incorporated all studies published from 2010 and was updated weekly. Abstracts identified by the search of economic evaluation studies were indexed according to disease area, using the chapter categorisation from ICD-10 as a framework. Articles were also included if they analysed the cost-effectiveness of healthcare service design or explored methodological issues related to economic modelling. To account for the delay in indexing of publications, we included all studies with a publication date of 2014 that were indexed in PubMed up to 8 June 2015. **RESULTS:** The search identified 2,772 articles published in 2014. Of these, 836 met the inclusion criteria and were subcategorised according to topic. The greatest number, 19%, were conducted in patients with infectious diseases, with 14% in cancer, 12% in cardiovascular disease, 8% in musculoskeletal disorders, 7% in mental health disorders, 6% in endocrine or metabolic disorders and 4% in digestive disorders. A further 7% of identified papers reported on modelling methods and 3% on service design. All other disease areas accounted for 3% or fewer of the relevant publications per ICD-10 chapter. **CONCLUSIONS:** The focus of economic evaluations in 2014 was on infectious diseases, followed by cancer and cardiovascular disease. As these three disease areas accounted for almost 60% of global mortality in 2012, and cause considerable morbidity, it is encouraging to see that health economic research has prioritised finding the most cost-effective ways to reduce this burden.

PHP93

USE OF BUDGET IMPACT ANALYSIS (BIA) IN ECONOMIC EVALUATIONS OF DRUGS AND MEDICAL DEVICES SUBMITTED TO THE FRENCH NATIONAL AUTHORITY FOR HEALTH (HAS)

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OBJECTIVES: Since October 2013 HAS is required to provide the inter-ministerial pricing committee (CEPS) with an economic evaluation on innovative drugs and medical devices likely to have a significant impact on national health insurance expenditure. HAS' evaluation involves a critical appraisal of cost-effectiveness analyses (CEA) submitted by manufacturers. Although budget impact analysis (BIA) is currently not required by HAS, it may be provided as an optional complement to CEA. Our objective was to assess how BIA was undertaken in manufacturers' submissions. **METHODS:** We used a qualitative approach to assess manufacturers' submissions by end of April 2015 (n=49). As currently there is no formal HAS guideline on BIA, we used the recommendations of the French Collège des économistes de la santé as well as ISPOR Task Force Principles on Good Practices for BIA as an analytical framework, including perspective, time horizon, discounting, size of eligible populations, current comparators, anticipated uptake of the new technology, and cost of treatments. **RESULTS:** Eleven (22%) submissions included a BIA along with the CEA. Compliance with ISPOR Task Force principles was generally fair for perspective, time horizon and discounting. The selection of current comparators was considered problematic in 7 (64%) of these submissions. Regarding costs of treatments, the majority of BIA failed to include adverse events as well as follow-up costs. In most cases, there was a lack of transparency on BIA modelling and eligible population size estimates. Furthermore, in 9 (80%) BIA, scenarios were not explored through adequate sensitivity analyses. **CONCLUSIONS:** Although based on a small number of submissions, our study identified concerns about population size estimates, comparators, identification of costs beyond treatment acquisition and administration, BIA interpretation and scenarios sensitivity analyses. This raises the need to include explicit recommendations on BIA in the next, updated version of the HAS guideline on economic evaluation.

PHP94

SICK-PAY EXPENDITURES IN HUNGARY ACCORDING TO MAJOR DISEASE GROUPS

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OBJECTIVES: In our study we investigated how monetary payment of sick-pay from National Health Insurance Fund Administration changed in the analysed period according to groups of illnesses. **METHODS:** We used the data of National Health Insurance Fund Administration of Hungary and statistical reports of Nr. OSAP 1514, as well as data of Hungarian Central Statistical Office from the period between 2005-2013. At the determination of groups of illnesses we used the main diagnosis of ICD classification of diseases. We analysed the following indicators: the number or sick-pay cases as well as the number of days spent on sick leave with regards to groups of illnesses. **RESULTS:** After having analysed the data we can ascertain that mostly musculoskeletal illnesses can be named as reasons for adhering to sick-pay every year. (24-28% of all cases) The average time spent on sick-leave in these cases was 33-41 days. The inflammatory disease of the respiratory system was the second cause every year (17-20% of all cases). Resorting to sick-pay because of mental illnesses fell from 9 to 5%. The period of sick-leave continuously decreased from 2009. The shortest, on average 7-18 days of sick-pay was resorted to because of infectious diseases; due to the infectious disease of the respiratory system people were on sick-leave for 12-19 days on average. The period spent on sick-leave because of cancer diseases in the investigated years was 55-65 days. **CONCLUSIONS:** Significant decrease occurred in the case of days spent on sick-leave due to mental and nervous system diseases (2007: 50 days, 3013: 33 days) and inflammatory disease of the respiratory system (2005: 19 days, 2013: 12 days).

PHP95

COST-EFFECTIVENESS ANALYSES IN FRANCE, ENGLAND AND CANADA: COMPARATIVE ANALYSIS OF STRUCTURAL CHOICES, RESULTS AND PERSPECTIVES

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OBJECTIVES: To compare technology-specific cost-effectiveness analyses (CEA) submitted as part of health technology assessments (HTA) in France, England and Canada and to highlight the comments, criticisms and conclusions from the HTA agencies in order to assess the feasibility of a unified approach. **METHODS:** Newly published health economic appraisals from the French National Authority for Health (HAS) were reviewed, analyzed and compared to technology appraisals and/or evidence review group (ERG) reports in other countries for the same drugs including sofosbuvir (Sovaldi®), trastuzumab emtansine (Kadcyla®), riociguat (Adempas®) and dolutegravir (Tivicay®). The analysis focused first on the review of methodological approach selected by the manufacturer including model type, time horizon, discount rates, perspective, study population, comparators as well as efficacy, costs and utility data and presentation of results (i.e. total costs and health benefit, incremental cost-effectiveness ratio from both base-case and sensitivity analyses). The analysis then focused on comments made by the agency committees, criticisms and overall conclusions. For each drug, a comparison between models used and agencies' final recommendations was undertaken to highlight convergent and divergent points between countries. **RESULTS:** Results were heterogeneous between drugs which made it difficult to draw a general overarching conclusion. Nevertheless, some points were underlined by every agency. As an example, French, English and Canadian HTA agencies all drew attention to small patient samples and their impacts on the robustness of efficacy data for subgroups in several assessments, which led to uncertainty around estimates of clinical effectiveness and therefore cost-effectiveness. **CONCLUSIONS:** Cost-effectiveness analyses have been introduced in France as part of the assessment of new health technologies two years ago whereas it has been used for about 15 and 20 years in England and Canada respectively. This review highlighted the level of similarities between countries to assess the feasibility of a unified approach to prepare the submission process.

PHP96

REFORMING THE REFORMED - HOSPITAL PHARMACEUTICAL EXPENDITURE IN GREECE OVER THE CRISIS ERA; LOOKING AT WHAT HAS BEEN ACHIEVED WHEN PLANNING AHEAD

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OBJECTIVES: Hospital pharmaceutical expenditure dropped by almost 50% after memorandum measures were first in place. Severe cuts imposed on targets of pharmaceutical expenditure between 2012 and 2014, run parallel to a variety of general reform measures, affecting primary care and non-hospital access to pharmaceuticals. The aim of this study was to isolate main achievements versus other hospital cost-drivers. **METHODS:** End-year 2012-2014 invoiced data from all hospitals in Greece were analysed, in order to examine trends in pharmaceutical versus non-pharmaceutical savings. Non-pharmaceutical savings included costs on appliances, orthopaedics and diagnostics. A separate analysis looked at total pharmaceutical expenditure versus costs of outsourcing services and other expendables such as medical gas and energy supplies. Total expenditure for pharmaceuticals was then compared to volumes in unit boxes for the respective years, in order to examine effectiveness of other reform measures, other than price erosion and discounts/rebates offered such as electronic and INN prescribing. **RESULTS:** Hospital pharmaceutical expenditure dropped by 31% over three years, from €761M in 2012, to €642M in 2013 and €519M in 2014, when respective savings for orthopaedics, healthcare appliances and diagnostics amounting to 6%, 25% and 13% respectively (cumulative 2014 was €508M). Total savings due to outsourcing services and medical and energy supplies reached (-)26% and (-)20% respectively, with an absolute sum of €180M over the three years. Regarding volumes of hospital lines for the three respective years, unit numbers dropped from 84,525,999, to 79,987,535 and 77,075,298 unit-boxes. When calculating pharmaceutical costs, hospitals spent on average €9.00, €8.02 and €6.74 per unit used in 2012, 2013 and 2014 respectively. **CONCLUSIONS:** Significant savings have been achieved for pharmaceuticals in the Greek hospital setting. The cuts were mainly attributable to improved cost/pack ratio, but a notable decrease in units was also observed. Percentage savings in pharmaceuticals were higher than respective savings achieved in other hospital cost-drivers.

PHP97

INTRODUCING ORANGE: AN INTERNATIONAL PRICE REFERENCE TOOL

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OBJECTIVES: International Reference Pricing (IRP) is a key cost-containment method for health care payers. We have developed based on local experts and publically available IRP rules a user-friendly price management tool (Orange) designed to enable the real-time forecasting of the global pricing impact of a branded launched product price change in a single market. The objective of this analysis is to explore, using Orange, the potential impact of price reductions in key EU markets. **METHODS:** Two price datasets were used to illustrate core features of the Orange tool. In the first all prices were set at €10 and in the second (real life dataset) prices were in the range of €1.78-2.86 (highest for UK followed by DE, ES, IT and FR). With each dataset prices were varied for Germany (DE), UK, France (FR), Spain (ES) and Italy (IT). **RESULTS:** A DE price decrease would result in the greatest number of reductions elsewhere. A 10% decrease in DE (on €10) would lead to the same % reduction in FR, Romania (RO), Russia (RU), Slovenia (SI), Croatia (HR) and Luxembourg (LU) and smaller reductions in multiple other countries. A 10% reduction in UK would lead mainly to a 10% decrease in FR, RO and HR. A 10% price reduction in FR would have greatest impact in HR (13%), SI and RU (10%) and in IT it would be FR, RO and RU (10%). Similar impacts were observed for ES. Based on the real life dataset, a 10% decrease DE would lead to a range of reductions across Europe including 16% in Denmark, 12% in Austria, 10% in HR and 5% in Netherlands. **CONCLUSIONS:** Price reductions of branded therapies in any of the key European markets would likely have a significant impact on prices in other markets reducing overall profits for the pharmaceutical industry.

PHP98

TRENDS OF SICK-PAY BENEFITS IN HUNGARY BETWEEN 2005-2013

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OBJECTIVES: As the result of the 2007 economic crisis, the number of employed significantly decreased. In our study we investigated how the number of people entitled for sick-pay, the number of days resorting to sick-pay and the number of sick-leave days in ratio with one sick-pay case changed in this period regarding age groups and genders. **METHODS:** We used the data of the National Health Insurance Fund Administration of Hungary, statistical reports of Nr. OSAP 1514, as well as data of Hungarian Central Statistical Office from the period from the years between 2005 and 2013. We analysed the number of employees entitled for sick-pay, the number of days spent on sick-leave. **RESULTS:** In the period under investigation the number of employees entitled for sick-pay increased from 3.486 to 3.796 thousand people, however, at the same time, the number of sick-pay cases fell from 1,252.000 to 825.000, and the number of days spent on sick-leave generally fell from 30 to 24. Women spent generally 40-56 percent more days on sick-leave which mostly came from childcare. Between the years of 2007 and 2009, people adhering to sick-pay were mostly between the ages of 30-34 (28-21%), while from 2010 between the ages of 35-39 (20%). This is connected to the number of people employed. From 2009, the number of employees significantly increase in the age group 55-59 (2008: 46,2%, 2013:58,4%), and simultaneously the number of people adhering to sick-pay also became higher. **CONCLUSIONS:** Based on the comprehensive analysis of the statistical data we can ascertain that adhering to sick-pay is in close connection with the employment ratio. Furthermore, we can say that in the period after the 2008 economic crisis the number of days spent on sick-leave fell with 35% and the number of days on sick-leave fell with 20%.

PHP99

BIOSIMILARS ENTRY AND PRICE DEVELOPMENT IN EUROPE

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OBJECTIVES: This paper examines the short- and long-run effect of biosimilar entry on price erosion. Furthermore, the impact of increases in the number of competitors on prices of originators is investigated. **METHODS:** A series of explanatory analyses have been performed using an econometric model which was developed for the years 2008–2014 spanning across 10 European countries: Bulgaria, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, and the UK. Two successful biosimilars were considered for the analyses: filgrastim and epoetins. A semi-structured literature review as well as a survey and interviews with country experts have been conducted to understand price dynamics in each market. Prices were obtained from country experts and verified with IMS Health. The model used dynamic panel data analysis, utilising Ordinary Least Squares regression with fixed effects, subjected to a Granger causality test. **RESULTS:** The study assumes that the prices of currently marketed biosimilars define the attractiveness of the market and impact the entry decision of further competitors. This assumption was confirmed for epoetins, where each next biosimilar entrant in the current month leads to a 7% (p=0,0001) price decrease next month, with a long-run sustained effect of 4% (p=0,1806). The entrance of new competitors has the highest impact on price erosion in Bulgaria, Italy and Poland. There is a strong trend indicating that a doubling in the number of competitors leads to about 10% (p=0,1266) decrease in the originator prices in the long-run for filgrastim, with strongest effect in Bulgaria. This effect is insignificant for epoetins (p=0,9694). **CONCLUSIONS:** Biosimilars manufacturers should carefully analyse the number of competitors planning to enter the market when making strategic decisions on the investment in the development of biosimilars.

PHP100

APPRAISING THE COST OF PHYSICIAN VISITS AND TECHNICAL PROCEDURES IN FRANCE IN THE AGE OF OPEN DATA

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OBJECTIVES: In the interest of increasing transparency and access to healthcare utilization data, the French government has published the highly anticipated Open DAMIR database (Dépenses Assurance Maladie Inter-Régimes). The objective of this study was to perform an exploratory analysis of the DAMIR database in order to estimate the mean cost of each type of physician visit and the mean surcharge rate for technical procedures, by specialty, in order to better inform health economic modeling in the French setting. **METHODS:** The DAMIR database consists of monthly extractions of data from the larger French national health insurance limited-access database. We analyzed data collected over a 3-month period (September-November 2014), comprising a total of 98,684,544 outpatient visits and 54,310,532 technical procedures (including outpatient and inpatient procedures, Diagnosis-Related Group billing excepted). Total costs were estimated from the all-payer perspective, in accordance with French guidelines. We calculated mean costs for each type of visit, including surcharges, and the mean surcharge rate for technical procedures for each specialty. **RESULTS:** The three types of visits associated with the highest mean costs were for neurologists (€50.58 per visit), surgeons (€45.74), and psychiatrists (€43.96), whereas the lowest mean costs were for general practitioners (€24.12), nephrologists (€25,58), and geriatricians (€29.58). The highest surcharge rates for technical procedures were billed by surgeons (mean surcharge of +55.6% of the minimum reimburs-